

Transferring e-Learning Quality Management Practices into Face-to-Face Pedagogy

Mohamed Bettaz¹, Isam Al-Fuqaha², Mhamed Mosteghanemi¹ and Mohamed Miloudi³

¹Laboratoire Méthodes de Conception de Systèmes, ESI, Algeria
Ecole Nationale Supérieure d'Informatique, Oued Smar, Algiers Algeria

m.bettaz@mesrs.dz, m.mosteghanemi@mesrs.dz

²Philadlphia University, Jordan

isam.najib@philadelphi.edu.jo

³UNESCO-Paris, France

m.miloudi@unesco.org

ABSTRACT

This article reflects on the informative experiences collated by the authors throughout their participation in various international e-Learning projects, coordinated by UNESCO and supported by the European Commission, and also in projects supported by various governmental and/or private academic institutions. In a previous work, they proposed an approach showing how to reverse-engineer many of the knowledge practiced by the e-Learning community to reflect positively on the quality management of face-to-face pedagogy. Concretely, the previous work was devoted to quality management issues related to curriculum design, content, organization, review and assessment. The objective of this article is to address the remaining aspects of academic provision such as student guidance and support, learning resources, and quality management and enhancement. The authors acted as project leaders, pedagogical and technical experts, as well as researchers and/or e-Learning material developers and/or tutors. The article emanated from the fact that most of the pedagogical activities throughout the world, mainly in developing countries, are still conducted through the face-to-face approach, and that the quality management of the face-to-face type of pedagogy in such countries is still a challenging issue.

KEYWORDS

E-Learning. Quality management in Higher Education.
Quality management of e-Learning.

1 INTRODUCTION

The contribution of this article is neither on quality management in higher education, nor on e-

Learning, but an attempt to share an experience gained through practice during the participation of the authors in several projects on e-Learning as well as experiences conducted on quality management in higher education. Some of the authors acted as project leaders, pedagogical and technical experts, while others as researchers and/or e-Learning material developers and/or tutors. One headed a group of two delegated by ALECSO with the task of formulating comprehensive criteria for the accreditation of e-Learning in higher education institutions in Arab countries. Such criteria were unanimously approved by the Arab Ministers of Higher Education in their meeting in Riyadh last February.

Among e-Learning projects, it is worth mentioning Avicenna Virtual Campus, CoseLearn program and many other governmental projects. Avicenna Virtual Campus is a UNESCO coordinated project supported by the European Commission, and launched in November 2002 with the ambition "to alleviate the digital divide in higher education along the Mediterranean basin" (Cf. [1], downloadable from <http://www.inter-disciplinary.net/at-the-interface/education/idea-of-education/project-archives/4th/session-4-global-education-online-training-and-the-age-of-the-internet/>). Concretely, the project was aimed at creating a self-sustainable virtual campus, based on cooperation between institutions of the (founding) member countries (Spain, UK, France, Italy, Turkey, Cyprus, Lebanon, Syria, Jordan, Palestine, Egypt, Malta, Tunisia, Algeria, and Morocco). The Euro-Mediterranean partnership

aimed at reinforcing the cross-fertilization of expertise and innovation in the field of e-Learning. The Campus also aimed at concentrating on course development through the use of ICT means and tools in order to produce, deliver and exchange courses, bearing in mind the necessity to develop curricula in an innovative and multilingual way within a multicultural context. This first project (also called the Mediterranean Avicenna Virtual Campus) was followed by the African Avicenna Virtual Campus, the first phase of which started in West-African countries in 2008 (Senegal, Cote d'Ivoire, Togo), while a second phase is being implemented in the Sahel countries in 2014. Avicenna Virtual Campus in Iraq (2009-2014) is another "extension" of Avicenna Virtual Campus, consisting of several universities (all these campuses are visible on the UNESCO web site at <http://www.unesco.org/new/fr/natural-sciences/science-technology/sti-policy/e-science-and-e-learning/avicenna-virtual-campus/>). A new version of Avicenna Virtual Campus has been supported by OPEC, and is about to begin in September 2014.

CoseLearn program (see for instance <http://projets.coselearn.org/>) is a Swiss cooperation program in the domain of e-Learning, initiated by QualiLearning with the support of the Swiss Directorate for Development and Cooperation, and aimed at promoting e-Learning in several French speaking African countries. The main objective of the first phase of the program (2003-2007) was to provide training leading to a Master degree in e-Learning. The objective of the second phase that started in 2008 was to allow trainees to become content developers, and to play active roles at the national and international levels. The Algerian national project of distance learning (PNT), a project regrouping all the universities and research centers of the country, has benefited from the participation of some of these institutions in several international projects and programs such as Avicenna Virtual Campus and CoseLearn (see for instance <http://services.mesrs.dz/e-learning/index.php>). The Avicenna virtual campus project contributed to building an Avicenna Knowledge Center (AKC), to train pedagogical experts, technical experts and multimedia e-Learning material developers. CoseLearn program

contributed in training e-Learning specialists recruited among faculty staff members of various universities. Most of the trainees followed a 60 ECTS MSc degree (MIEL: Master International en e-Learning), while others followed just a 30 ECTS certification program (CIEL: Certificat International en e-Learning).

The Algerian national programs for research (PNR) is an RND governmental project consisting of 34 research programs associating academia, industry and other institutions (see <http://pnr.nasr.dz/pnr/>). Some of the authors of this work had the opportunity to participate to a project named "development of multimedia content for lifelong training", regrouping the Ministry of Higher Education and the Ministry of Justice. Called "Just-eLearn", the project aimed at providing the user community with an integrated environment allowing developing and periodically reviewing the quality of a material developed to support long life learning. It is worth mentioning that much of the expertise gained by the authors during their participation in various Avicenna projects was "reused" by the authors for the benefit of this project.

Regarding quality management in Higher Education, it is worth mentioning the experience at Philadelphia University/Jordan, where external review was conducted under the auspices of the British Quality Assurance Agency (QAA: <http://www.qaa.ac.uk/Pages/default.aspx>), the experience shared with various Avicenna Virtual Campus partners, and also the experience gained through participation in other governmental projects. The experience at Philadelphia University, which lasted more than 3 years, gave the authors opportunities to obtain more detailed knowledge on most important issues on quality assurance in Higher Education in its "face-to-face" dimension, and mainly how to address the six aspects of a provision, i.e.,:

- 1) Curriculum design, content and organization,
- 2) Teaching, learning and assessment,
- 3) Student progression and achievement,
- 4) Student support and guidance,
- 5) Learning resources,
- 6) Quality management and enhancement.

It is worth to mention that Philadelphia University was ranked first in many subjects among all public and private universities. Moreover, Philadelphia University, as the focal point of the Mediterranean Avicenna Virtual Campus in Jordan, still plays a very active role in capacity building in both e-Learning and quality assurance of e-Learning.

The CoseLearn program provides another case, where “reverse-engineering” was “implemented” in the sense that practices that have proven to lead to desired results in e-Learning were transferred to face-to-face classrooms. The experiment was conducted by one of the authors of this paper as a CoseLearn Chairman of a National Steering Group (Président de Groupe National de Pilotage) and as a faculty staff member. The objective was to apply the so-called socio-constructivist pedagogy [2], through the use of a Learning Management System, to a pilot 4th year class of 20 students in computer networks. The experiment comprised the following:

- Replacing some of the face-to-face lectures and exercises by shorter interactive lectures and exercises, online assignments, projects, tests, formative assessments, and collaborative discussions through forums and chats.
- Replacing the face-to-face teacher by a pair of teacher-tutor. The main role of the tutor is to support the learner in his self-learning experience (online synchronous and/or asynchronous).
- Organizing “free” face-to-face student classrooms, with the support of the tutor.

After this brief review of various e-Learning and quality management activities that enabled the authors of this article to share, conduct, experience and implement a good deal of work, it is time to make an overview of the objective of this article, which is to propose an approach showing how to reverse-engineer many of the knowledge practiced by the e-Learning community for the benefit and the quality management of face-to-face pedagogy. The work emanates from the fact that most of the education activities throughout the world, mainly in developing countries, are still conducted through the face-to-face modality, and that the

quality management of face-to-face education in such countries is still a challenging goal.

As mentioned in the abstract, this article is based on a previous contribution [14] where the authors treated quality management issues related to the first three aspects of an academic provision. That is issues related mainly to curriculum design, content and organization, content review, and learner assessment. The objective of this article is to address remaining aspects such as student guidance and support, learning resources, and quality management and enhancement.

The remainder of this article is organized as follows. Section 2 compares our work with similar ones. Section 3 reviews some basic notions related to quality in general, and quality management in Higher Education in particular. In Section 4, the authors clarify the boundaries which have to surround a “minimal” e-Learning environment such as experienced by the authors throughout the implementation of various e-Learning projects. Section 5 explains in more detail the quality management issues backing the development of Avicenna e-Learning material. In Sections 6 and 7, the authors advocate an approach that illustrates how to integrate e-Learning best practices into “face-to-face” pedagogy. More concretely, section 6 is devoted to the first three aspects of provision, while section 7 addresses the last six aspects. In Section 8, we draw concluding remarks and give some directions for future work. We assume familiarity with basic notions in quality assurance in higher education and of e-Learning [2, 3, 4, and 7]. It is worth mentioning that most of the material related to the first three aspects of provision is based on the conference article referenced in [14].

From a methodological point of view, the approach is an attempt to “reverse-engineer” knowledge gained in the e-Learning domain for the benefit of face-to-face pedagogy. It is worth mentioning that what is usually witnessed in the domain, is that quality management frameworks of e-Learning appear usually as mere “extensions” of quality management frameworks that are worked-out for face-to-face pedagogy; such extensions ignore usually much of the methodologies and approaches that grew “naturally” throughout the development of e-

Learning environments ([3], [4]). In Section 7, the authors point out some concluding remarks and delineate some directions for future work.

2 RELATED WORK

Regarding quality management issues, the authors went through many concepts and approaches as those worked out by the British Quality Assurance Agency, those developed by the European Higher Education Area, or those implemented by many Higher Education institutions.

As for e-Learning issues and quality management of e-Learning, their experiences are mainly derived from the work accomplished by various Avicenna Virtual Campus communities on the one side, and by the QualiLearning (CoseLearn) community on the other.

The main added value to the various contributions obtained throughout the implementation of these projects and programs consists of showing how to reverse-engineer many of the knowledge practiced by the e-Learning community for the benefit and the quality management of face-to-face pedagogy. In [14], the authors consider quality management issues related to the first three aspects of academic provision; the contribution of this article is devoted to the remaining last three aspects [15].

3 QUALITY: THE CONCEPT AND APPLICATION IN HIGHER EDUCATION

The term quality is usually associated with excellence, outstanding performance, superiority, merit, efficiency and many other concepts with similar meanings (see [5] and [6] that might be obtained from the author). However, quality in Higher Education is usually used to signify “fitness for purpose” (cf. for instance [7]). To this end, higher educational institutions define their missions, aims and objectives, and quality is demonstrated or assured by achieving such objectives. To demonstrate (check quality) of educational systems, one should use one or more approaches. Usual approaches are based on auditing, assessment or accreditation. Both auditing and assessment are checking methods applied to verify an institution's claims about itself. Table 1 [8, 9] helps to elucidate the

distinctive differences among auditing, sometimes called review, assessment and accreditation.

Table1. Audit, review, assessment and accreditation.

Activity	Process	Output
Audit	Investigate achievement of objectives	Description
Assessment	Investigate achievement of objectives, and how good one is.	Grade
Accreditation	Checks how good enough one is.	Yes/No

Quality can be first checked through the accomplishment of an internal review and writing a Self Evaluation Document (SED). An external review has to be conducted by an external agency that “checks the checking”, such as the QAA.

External reviews, usually based on the above-mentioned SED, are measured against the institution’s own mission, aims and objectives, using a team of reviewers who gather evidences.

This process somehow recalls the very fundamental software engineering approach: one first writes specifications, and then looks for solutions satisfying such specifications. It is however worth mentioning that strategies, approaches and implementations of quality management in Higher Education depend more or less on national, or even regional, higher education systems. For instance, systems based on the US model “tend to be comfortable with very different higher education institutions”, while systems based on the UK model have “policies that tend towards the reduction of variability”. In this contribution, the authors consider strategies and approaches worked out by the Avicenna Virtual Campus community. Much of the strategies and implementation of quality management in Avicenna Virtual Campus, and its subsequent extensions, follow from the pedagogical model charter defined by the Mediterranean member countries. Details of these strategies will be given in Section 5. Other strategies are remodeled from those defined for the European Higher Education Area project (EHEA) [10]. The authors are not inclined to state

that EHEA and Avicenna Virtual Campus are somehow comparable, but they just note that both of them are concerned with multilingual, and to a certain degree, multicultural communities. In this sense, Avicenna Virtual Campus community ambitions, among others, are to build an area aiming at:

- Promoting the necessary multicultural dimensions in inter-institutional co-operation, curricular development, and e-Learning material production;
- Recognizing and sharing e-Learning material developed in various member countries;
- Establishing a system of credits as a proper means of promoting the most widespread e-Learning material usability;
- Infusing a multicultural dimension in quality management, by developing comparable criteria and methodologies;
- Promoting the attractiveness of the higher education systems in the associated member countries;
- Encouraging lifelong learning.

4 E-LEARNING

In the proliferous literature on e-Learning [11], this concept is generally discussed in relation with such domains as open education, distance education, d-Learning, i-Learning, and other related domains. In this article, the authors prefer to talk on e-Learning in relation to a “minimal” environment. Such an environment consists of:

- First of all, an educational charter or pedagogical model that is “aware” of the “new” educational approaches that became implementable thanks to the advent of ICT means and facilities. In the absence of such means and facilities, it is indeed hard to imagine for instance how to build educational environments implementing so-called learner-centered strategies, or to cope with various ways of learning such as

experiential learning, action learning, free choice learning, cooperative learning, service learning, and other similar ways of learning, or even to imagine how to implement some of the cognitive functions that might be ‘lateralized’.

- Second, appropriate multimedia authoring tools that facilitate the implementation of the above-mentioned environments, strategies and educational approaches.
- Third, appropriate e-Learning platforms allowing educators, developers of e-Learning material, and tutors to publish produced material, and allowing learners to access the resources and interact with the tutors, involved users, and e-Learning material.

5 AVICENNA COURSES

5.1 Quality Management Issues

As mentioned in Section 3, much of the strategies and implementations of quality management in Avicenna Virtual Campus follow its pedagogical model. It is worth mentioning that this model is independent of any authoring tool and any e-Learning platform, and that it obeys a quality management framework emanated from the one defined for the EHEA. In this section the authors do not address similarities between both frameworks, but rather address some of the quality management issues falling under the instructional design model and the method of assessment conducted. Figure 1 explains much of the ideas behind the instructional design model.

The learning material, corresponding to a course material, is first divided into several parts, called modules, according to a given curriculum design, content and organization strategy. However, the idea behind dividing learning material into modules stems from the credit system defined for Avicenna Virtual Campus. One ACTS (Avicenna Credit Transfer System) represents 20 hours of interaction with e-Learning material, including

preliminary and formative assessment. A module is composed of several sessions, with two distinguishing sessions: an introductory session and a closing one.

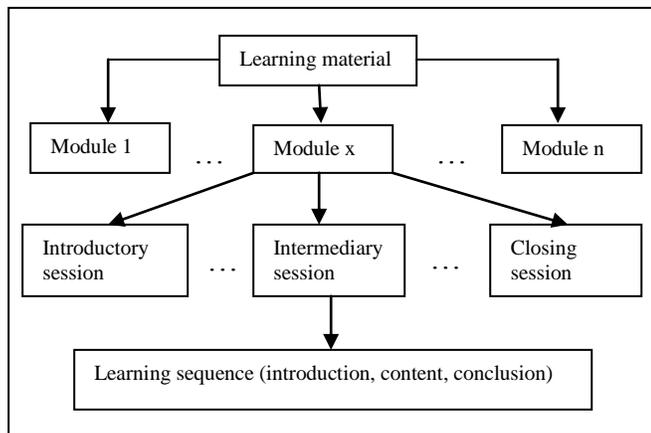


Figure 1. Illustration of a part of the instructional model.

The introductory session consists of four multimedia documents:

- A so-called “welcome” document aiming at welcoming the Avicenna learner.
- An “overview” document presenting the module material to the Avicenna learner.
- A “learning outcomes” document presenting the learning and performance that Avicenna learner will demonstrate upon interacting with the module content.
- A “previous knowledge” document informing the Avicenna learner on pre-requisite knowledge to the module.

A “normal” or intermediary session consists of three (multimedia) documents, and a set of learning sequences:

The three multimedia documents are:

- A preliminary assessment document aiming at preparing the Avicenna learner to master the material presented in the session.

- An “overview” document presenting the session material to the Avicenna learner.
- A “learning outcomes” document presenting the learning and performance that Avicenna learner will demonstrate upon interacting with the session content.

The number of learning sequences per session depends on the content of the session itself and has to be defined in such a way that no new learning sequence has to be produced if no cognitive content is clearly identified. Moreover, each new learning sequence, except the introductory one, has to build on the preceding sequence and serves for the elaboration of the next one, unless it is a closing sequence. It goes without saying that no recommendations are issued by the Avicenna Pedagogical Model regarding the way the content of a learning sequence has to be developed, nor the media that have to be used for that. This is the exclusive responsibility of the educators and the team of developers. The same e-Learning sequence might be developed for instance using a fundamental approach for one group of learners, while using simulation and animation techniques for another group. The most important issue is to achieve the learning outcomes of the sequence and consequently those of the enclosing session.

It is also worth mentioning that a learning sequence is (approximately) of 20 minutes duration. It consists of an introduction defining the learning sequence objectives, a content presenting the new learning material, and a conclusion summarizing the content of the presented learning sequence. Each learning sequence is followed by a formative interactive assessment document, the objective of which is to assess how much the Avicenna learner has mastered the newly presented learning material. According to the result obtained, the learner might be (or not)

advised to go through the learning sequence again. Figure 2 illustrates where and how preliminary assessment and formative assessment are used.

The closing session consists of two multimedia documents:

- A “learning resources” document providing Avicenna learner with additional online learning resources that complement the Avicenna module material.
- An “acknowledgment” document listing all the papers and/or electronic references that have been used to produce the Avicenna module.

Africa and in Iraq. It is worth mentioning that LimSee2 and LimSee3 are Open Source, Java-based SMIL authoring tools developed by the Institut National de Recherche en Informatique et Automatique (INRIA). They are featuring a powerful graphical user interface designed to ease the manipulation of time-based scenarios in SMIL multimedia presentations (see for instance <http://limsee2.gforge.inria.fr/>). SMIL (Synchronized Multimedia Integration Language) is an XML-like language. A SMIL file might be created using a text editor or a word processing tool. Figure 3 and figure 4 show snapshots illustrating phases of work with both LimSee2 and LimSee3 respectively.

Figure 5 gives the media used to prepare a whole 20 minute e-Learning sequence, and figure 6 gives an idea about how a small part of the corresponding SMIL code looks like.

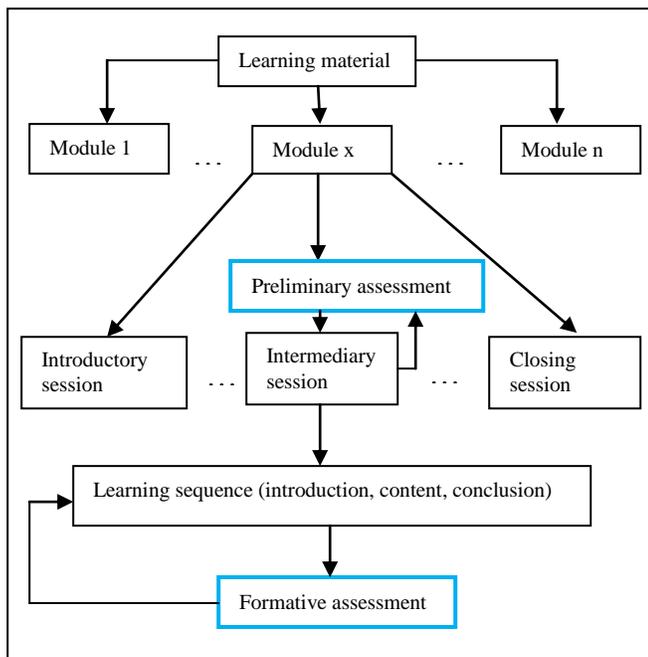


Figure 2. Illustration of the use of preliminary and formative assessment.

5.2 Authoring Tools

As mentioned in Section 5.1 above, Avicenna pedagogical model is independent of any authoring tools and any e-Learning platforms. However, the tools mostly used in authoring Avicenna courses are LimSee2 and LimSee3. LimSee2 was used by Mediterranean Avicenna Virtual Campus course developers, while LimSee3 was used (and is still being used) in subsequent implementations of the Avicenna project in West

5.3 e-Learning Platforms

Avicenna course developers experienced both proprietary and open source e-Learning platforms. However, for practical reasons they agreed on using the proprietary platform called plei@d (<http://www.cnam-paca.fr/pleiad>) in order to share joint productions. But course developers that participated into subsequent implementations of the Avicenna Virtual Campus project agreed on using the very famous Moodle platform for their own courses as well as for shared production.

6 HOW TO TRANSFER E-LEARNING BEST PRACTICES INTO “FACE-TO-FACE” PEDAGOGY: THE FIRST THREE ASPECTS

In this section, the authors suggest an approach aiming at integrating some of the best practices used in relation to e-Learning into face-to-face pedagogy. Suggestions collated from experiences practiced with various e-Learning projects might help to enhance the quality of a material geared to face-to-face pedagogy, and to reconsider some of the approaches used to review such a kind of teaching material. To this end, the authors have first to recall some of the notions related to the quality of higher education programs such as seen by the QAA. According to the QAA, an influential

member of The European Network for Quality Assurance in Higher Education (ENQA), quality is on how well a higher education institution deals with the obvious aspects of a provision (Cf. Section 1).

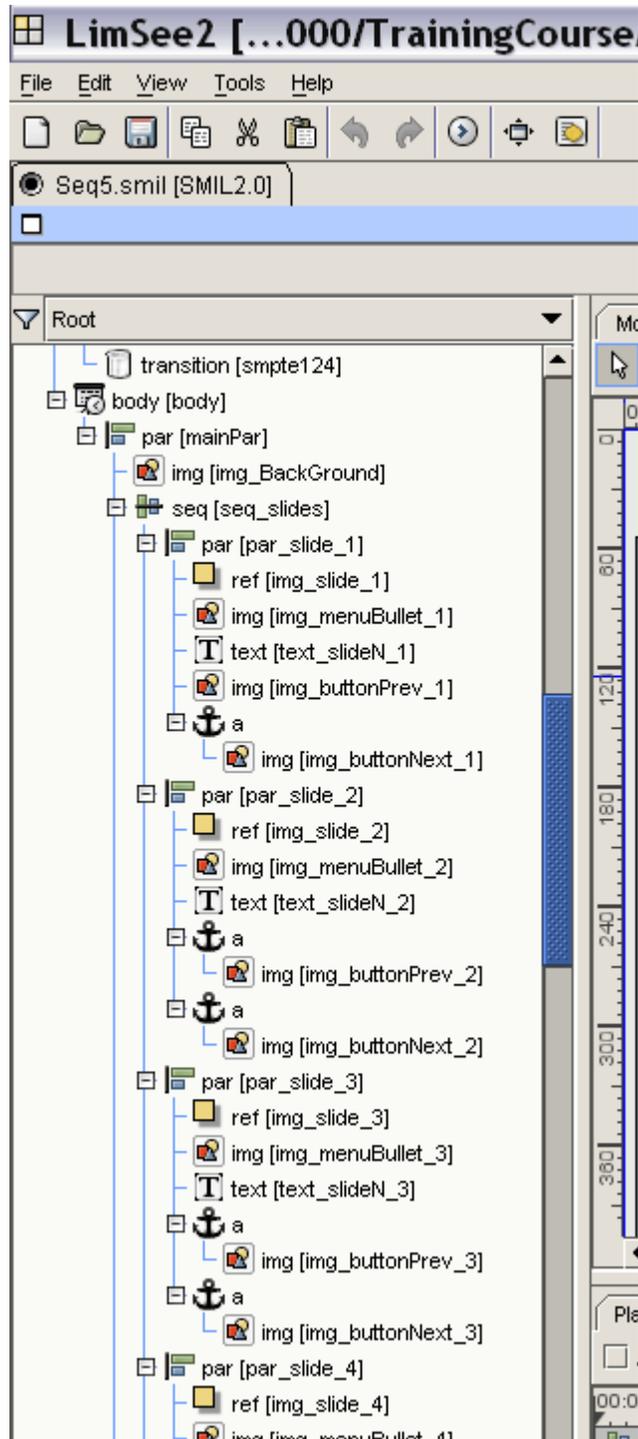


Figure 3. A snapshot from the authoring process using LimSee2.

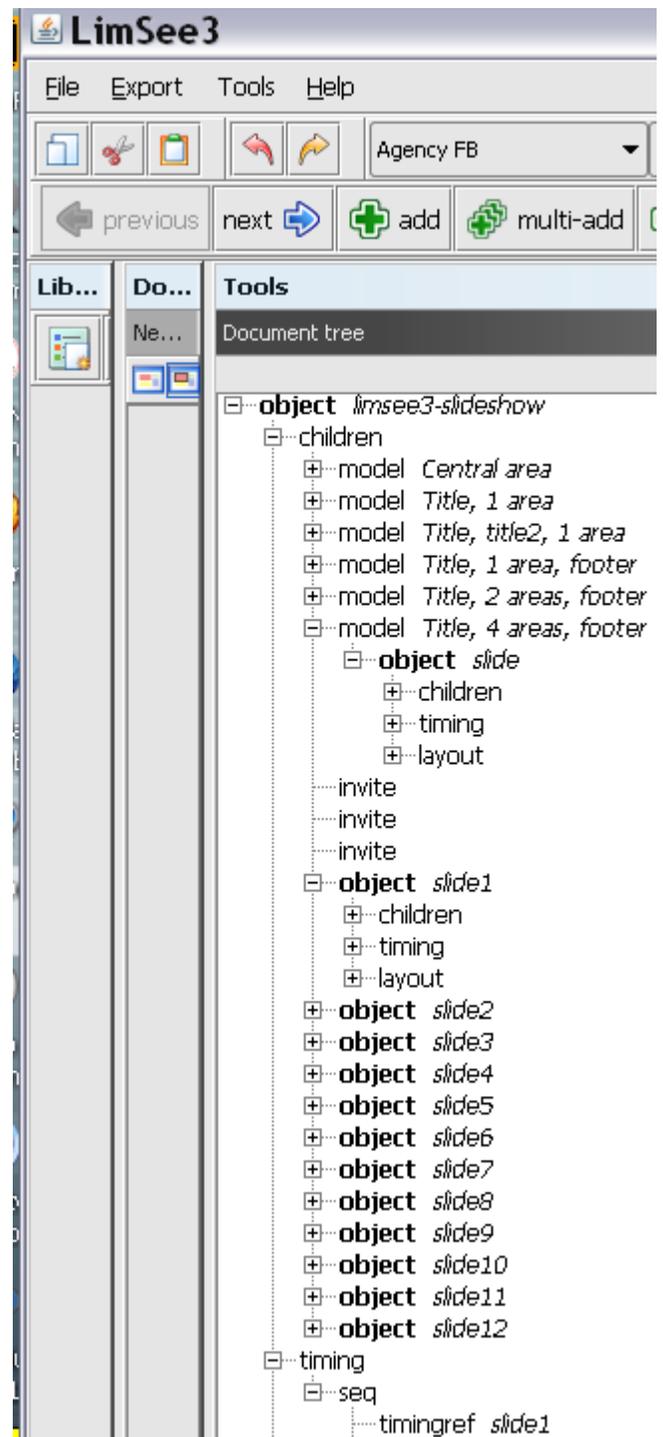


Figure 4. A snapshot from the authoring process using LimSee3.

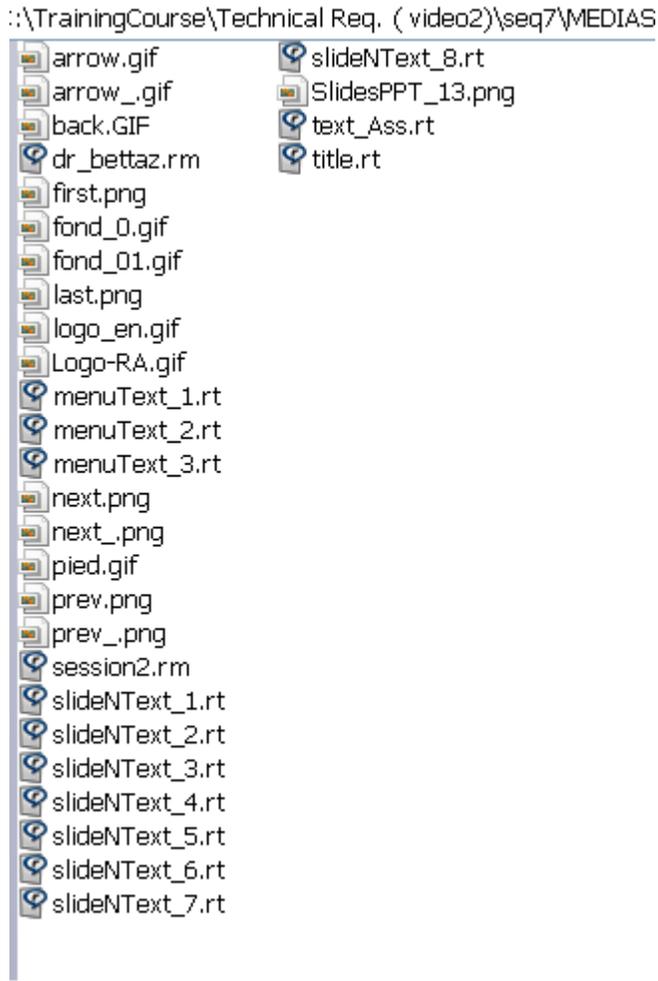


Figure 5. Media used to prepare a whole 20 min e-Learning sequence

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE smil PUBLIC "-//W3C//DTD SMIL
2.0//EN"
"http://www.w3.org/2001/SMIL20/SMIL20.dtd">

<smil
xmlns="http://www.w3.org/2001/SMIL20/Language"
xmlns:rn="http://features.real.com/2001/SMIL20/Extensions"
  id="smil">
  <head
    id="head">
    <meta
      name="title"
      content="first sequence"/>
    <meta
      name="author"
      content=""/>
    <meta
```

```
      name="date"
      content=""/>
    <layout
      type="text/smil-basic-
      layout">
    <root-layout
      id="root_layout"
      height="600"
      width="800"

      backgroundColor="#DBDFDF"/>
    <region
      id="region_fylz"
      backgroundColor="white"
      left="-12"
      top="-24"
      width="810"
      height="630"/>
    <region
      id="region_jr"
      backgroundColor="white"
      left="6"
      top="492"
      width="582"
      height="84"/>
    <region
      backgroundColor="transparent"
      fit="scroll"
      height="384"
      top="192"
      left="594"
      id="region_menu"
      width="198">
    <region
      fit="hidden"

      .....
      .....
    </par>
    
  </body>
</smil>
```

Figure 6. Portion of SMIL code corresponding to an e-Learning sequence

6.1 Demonstrating Quality in e-Learning

As said before, we consider these aspects through the way they are related to Avicenna Pedagogical Model and how they are implemented by its underlying instructional design model. To understand how to integrate the benefits of Avicenna Pedagogical Model into face-to-face pedagogy mode, we have first to show how quality is demonstrated through the use of the underlying instructional model. In other words, we have to show how quality is demonstrated through the way sequencing is implemented, learners' assessment is conducted, and e-Learning material development and review performed.

With respect to sequencing, demonstrating quality comprises showing that:

- e-Learning sequences do implement sessions learning outcomes.
- Sessions learning outcomes do implement module learning outcomes.
- Modules learning outcomes do implement courses learning outcomes.
- Courses learning outcomes do implement subject learning outcomes.

With respect to learner assessment, demonstrating quality might for instance comprise showing that:

- n% of the learners go through x % of preliminary assessment for the first time.
- m% of the learners go through y % of formative assessment for the first time.
- Summative assessment follows a Gaussian curve.

As one might guess, each of the clauses mentioned above might be yet refined in various ways.

With respect to e-Learning material review, demonstrating quality might for instance comprise showing that:

- e-Learning material is developed by a team (and not by individuals).
- e-Learning material is reviewed before, through and after delivery, and not just after delivery.
- e-learning material might be “delivered” by the e-Learning material developer and/or a tutor, and not exclusively by the e-Learning material developer.

6.2 Borrowing Quality from e-Learning

With respect to the first three aspects of provision, borrowing best practices from e-Learning, and adapting them to face-to-face mode of pedagogy might be made clear by the following:

6.2.1 Sequencing

Figure 5 contributes to clarify the sequencing process.

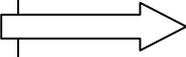
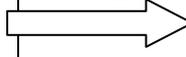
e-Learning	Face-to-face Pedagogy
Introductory session - Welcome - Overview of the current module material - Learning Outcomes of the current module material - Previous knowledge	Introductory chapter 
Intermediary session - Preliminary assessment - Overview of the current session material - Learning Outcomes of the current session material - Learning sequences	Intermediary chapter - Overview of the current chapter material  - Teaching units
Closing session - Learning resources - Acknowledgement	Closing chapter - Teaching and learning resources - Used resources

Figure 5. Illustration of a part of the sequencing process.

More concretely, in addition to the learning outcomes of the module, the authors propose to work out appropriate learning outcomes for each of the module chapters. Demonstrating quality consists then of showing that chapters' learning outcomes do effectively implement module learning outcomes. Moreover, introducing a concept of teaching unit with a comparable structure to that of a learning sequence can enhance the quality of the teaching material, and then contribute to a better understanding by the student.

6.2.2 Material Delivery

With respect to material delivery, figure 6 is used for more clarification.

Course material is proposed to be written by teams rather than by individuals, to let the course material be peer-reviewed [12] before its delivery to students, to impose the review to be applied periodically and more regularly, after two consecutive deliveries for instance, and to let courses be delivered by academic tutors staying in permanent contact with the course developers.

e-Learning	Face to face education	Suggestion
E-Learning material is developed by a team	Course material is (usually) developed by individuals	To develop course material by a team
E-Learning material is reviewed before, through and after delivery.	Course material is reviewed after delivery	To let course material be reviewed more often and also before delivery
E-learning material might be "delivered" by the e-Learning material developer and/or a tutor	Course material is (usually) delivered by the course producer.	To let the course material be delivered by a tutor.

Figure 6. Illustration of a part of the material delivery process.

This kind of experience was successfully conducted at Philadelphia University/Jordan during its participation in the Mediterranean Virtual Campus project. The faculty of information technology that participated in the first phase of the project witnessed more collaborative work among staff members and much more interaction between students themselves on the one hand, and faculty staff members and students on the other. This fruitful experience, which had also a positive impact on summative assessment, was adopted by other university faculties. Demonstrating quality might then comprise showing amelioration in the results when the subject review is conducted by quality assurance agencies. This was for instance the case for Philadelphia University that demonstrated better results during a second round of external review performed by the British Quality Assurance Agency.

With respect to student assessment, the authors advocate the introduction of a kind of preliminary assessment taken from the prototype of the one devised for Avicenna Virtual Campus, then to introduce a notion of formative assessment,

6.2.3 Learner assessment

e-Learning	Face to Face Pedagogy
Preliminary assessment	
Formative assessment	
Summative assessment	Summative assessment

Figure 7. Illustration of a part of the learner assessment process.

following each teaching unit, that is by the end of each 50 minute lecture. It goes without saying that such a kind of assessment has to be implemented using appropriate authoring tools. Quality might then be demonstrated as explained in section 5.1.

7 HOW TO TRANSFER E-LEARNING BEST PRACTICES INTO “FACE-TO-FACE” PEDAGOGY: THE LAST THREE ASPECTS

7.1 Demonstrating Quality in e-Learning

As indicated in reference [14], the authors limited themselves to quality assurance best practices evolving from experiences conducted with Avicenna Pedagogical Model and its underlying instructional design model. It is however worth recalling that the quality management framework of this model does not go beyond the first three aspects of provisions, which are Curriculum design, content and organization; Teaching, learning and assessment; Student progression and achievement.

In this paper we propose an approach allowing to tackle the remaining three aspects of a provision, i.e.,

- Student support and guidance,
- Learning resources,
- Quality management and enhancement.

The approach the authors propose in this paper for the last three aspects, doesn't follow neither from Avicenna Pedagogical Model nor from its underlying instructional design model, but rather from situations experienced by the authors, either as project leaders, pedagogical experts, technical experts, or as e-Learning material developers and/or course tutors.

To this end, they have first to understand how the quality of a provision might be ameliorated through an optimal use of ICT services that are offered today by most of the (proprietary and/or open source) e-Learning platforms, Learning Management Systems (LMS) or Learning Support Systems (LLS). These are usually web based systems developed to support a learner (involved in a learning process) to manage her or his learning path. Such services include usually synchronous and / or asynchronous communications means combined with the possibility to administer (various) groups of users. A judicious combination of such means with those offered by some sophisticated authoring platforms and integration languages (such as SMIL) might

constitute a powerful environment that might support interested users to implement more effective learning experiences. It is in fact recognized that operating within such environments permits the user to conduct more effective learning experiences compared with experiences conducted in classroom.

Among combinations experienced by the authors (as e-Learning material developers and online tutors), the following recommendations appear to be the most efficient with respect to the obtained results:

The first recommendation consists in using a “sophisticated” authoring (integration) language to interact with the learning material. By learning material we mean first of all the (multimedia) learning sequences that are immediately followed by an interactive formative self-evaluation, showing how much of the learning material was correctly “assimilated”. Formative self-evaluation (or assessment) might be conducted via (interactive) processes that are usually accessed through a user-friendly interface. At the implementation level, interactions involve only software processes operating on existing databases. Let us recall again that formative assessment comes as a “natural” activity which is “offered” after each (multimedia) learning sequence.

The second recommendation is to use the services of an e-Learning platform to interact mainly with the tutor (s) but also with other individuals and/or user groups according to the learner needs and duties. “Sophisticated” audio/video services might offer an acceptable alternative to “face to face” meetings. It goes without saying that e-Learning platforms and Learning Systems allow also to interact with learning material posted from “inside”, i.e., by the tutors and/or other users of the System, or with “outside” material accessed from “inside” of the system. The relation to the kind of interactivity mentioned in relation with the use of authoring languages (cf. first recommendation) is similar to the one addressing classroom teaching material on one side and references to external material on the other side.

7.1.1 Student Guidance and Support

With respect to student support and guidance, quality might be demonstrated in various ways:

- Measuring the learner (medium) satisfaction rate for a user group and comparing it to a “benchmarking” rate;
- Measuring the learner (medium) satisfaction rate for a user group benefiting from “e-Means” based support and guidance and comparing it to the (medium) satisfaction rate for a given group that is guided and supported exclusively using “traditional” means.
- Measuring the medium number of online posted requests getting a “satisfactory” answer and comparing it the medium number of questions asked in a face-to-face classroom and getting a “satisfactory” answer.

7.1.2 Learning resources

With respect to learning resources, quality might be demonstrated, for instance, by comparing the quality of the resources allocated to a given provision with the quality of the resources recommended by an internal or external authority in the domain. It is worth mentioning here that:

- The quality of the human resources (faculty staff, administrative staff, technical staff and others) comes at the very first place. It goes without saying that faculty staff appraisal is not based exclusively on academic degrees and, for instance, seniority.
- With respect to technical/technological resources, the measures to be carried out have to be related to their effective use by the learners and not, for instance, merely to the amount of the facilities allocated to the provision.

7.1.3 Quality Management and enhancement

With respect to quality management and enhancement, quality might be demonstrated by showing that various aspects of a provision are

fully traceable and that related results might be obtainable on demand. This means that these aspects are supported by a (management) information system tightly coupled with a decision support system. The objective is to provide the possibility to measure for instance such aspects like provision intake, attractiveness, graduate employability, and even the added value brought for instance by the learning resources (including the human ones). It is worth mentioning that efficient information systems are no more built in an “ad hoc” way; they are rather based on a common repository playing the role of a “GCD” for all “supported” building blocks. In other terms such a repository has to enclose entities shared by all “upper” blocks in such a way that no incoherent results might appear when processing data in such systems. To give an example, a shared entity might for instance be a faculty staff member playing a role of academic nature inside an upper “academic” building block and a role for administrative nature in an upper “business” building block. It goes without saying that without the help of such systems, it is difficult to rely on the evidence gathered by the provision stakeholders even if they exhibit results “generated” by a “sophisticated” information system.

7.2 Borrowing Quality from e-Learning

Nowadays we are witnessing an increasing use of information technology in face-to-face pedagogy as well as in e-Learning based approaches. To understand what practices to transfer, one has to understand what kind of information technology is really inherent to e-Learning and which might not be. Let us recall at this place is that “what makes” the essential of e-Learning is an educational charter (pedagogical model) that is “aware” of the “new” educational approaches that came to the world thanks to the advent of information technology. Appropriate information technology means are thus those dictated by the underlying instructional design model. We already know that this design model requires a “sophisticated” “integration” language that allows the learner to interact with the learning material in a way that might be an alternative to address the lack of a

“permanent” teacher. This allows us to conclude that this kind of information technology is not transferable (unless we want to implement a blended learning).

On the other hand we know that e-Learning makes intensive use e-Learning platforms that are mainly dedicated to the interaction with tutors and other “horizontal” users. It goes without saying that much of the more sophisticated services provided by such platforms might also be used to support face-to-face pedagogy. Integrating such platforms in the (student) information system will be acting as an added value that might be used when demonstrate quality of the last aspects of provision.

8 CONCLUDING REMARKS

In this article, the authors advocated an approach showing how to reverse-engineer e-Learning quality management knowledge for the benefit of face-to-face pedagogy. In a recent publication [14], the authors presented research results related to the first three aspects of provision; the results presented in this article follow from investigations conducted around the last three aspects. Both articles emanated from the fact that most of the education activities throughout the world, and mainly in developing countries, are still conducted through the face-to-face modality. In such countries, not only quality management of e-Learning is a matter of concern, but the quality management of face-to-face pedagogy is still a challenging goal.

The applied methodology based on pragmatics follows an international experience shared by the authors who acted as project leaders, pedagogical experts, technical experts, and e-Learning course developers with various project and program stakeholders (UNESCO, European Commission, other governmental and academic institutions in various countries in Europe, Middle-East and Africa).

As a first preliminary result, the authors witnessed how transferring some of the skills defined by the e-Learning quality management framework adopted in Avicenna Virtual Campus contributed to ameliorate in a substantial way the quality management of “teaching, learning and assessment” aspects such as defined by the subject review framework established by the QAA for face-to-face pedagogy. This was the case of Philadelphia

University/Jordan, where one ACTS (Avicenna Credit Transfer System) representing 20 hours, was associated with some of the 3-credit hour courses, representing 48 contact hours. Quality of such courses was then, among others, demonstrated by the fact that interaction with the e-Learning material, e-Learning sequences, including the performance of a preliminary assessment and a formative (self-) assessment contributed to the enhancement of summative assessment for most of the students.

As a second result pointed out by the authors of the previous article [14], and this one, as project and program leaders, pedagogical and technical experts, faculty staff members and e-Learning course developers, stresses that most of the faculty staff members that experienced in some or another way new pedagogical approaches during their participation to an e-Learning project, continue to sustain the accrued experience in face-to-face classrooms, among others, by:

- Continuing to focus on group work;
- Diversifying course and other activity delivery;
- Experiencing new learner-centered activities when possible;
- Interacting more between themselves and with their students, using Learning Management Systems;
- Encouraging more interaction among students;
- Practicing continuous (formative) assessment.

As a future research work, the authors plan to investigate appropriate means to quantify the benefits addressed by the above-mentioned second result and to show how to demonstrate quality.

7 REFERENCES

- [1] M. Bettaz and I. Al-Fuqaha, “Online Training Course for Avicenna Course Developers,” 4th Global Conference, published online, Inter-Disciplinary.net, Prague, Czech Republic, August 2005.
- [2] N. M. Seel, “Model-Based Learning and Performance,” in J.M. Spector et al. (eds.), Handbook of Research on Educational Communications and Technology, published online, Springer Science+Business Media New York, 2014, pp. 465-484.

- [3] F. Deepwell, "Embedding Quality in e-Learning Implementation through Evaluation," *Educational Technology & Society*, 10 (2), 2007, pp.34-43.
- [4] M. Nichols, "Development of a Quality Assurance System for e-Learning Projects," *Universal College of Learning (UCOL)*, New Zealand, 2002.
- [5] M. Bettaz, "On Quality assurance in e-Learning," invited lecture, ICCA'2013, Hammamet, Tunisia, December 2013.
- [6] M. Bettaz, "Quality Assurance in Higher Education: from e-Learning to Face-to-Face Education," invited lecture, ICA2IT'14, Ouargla, Algeria, March 2014.
- [7] D. Docherty, "Talking about quality," QA report, published online, publication of the QAA, qaa.ac.uk, 2014.
- [8] D. Blackmur, "A critical analysis of the INQAAHE Guidelines of Good Practice for higher education quality assurance agencies," *High Educ* 2008: 56, published online, Springer Science+Business Media B.V., 2008, pp. 723-734.
- [9] D. Woodhouse, "Quality and Quality Assurance," *Quality And Internationalisation In Higher Education*, OECD, 1999.
- [10] S. Schwarz and D. F. Westerheijden (eds), "Accreditation And Evaluation In The European Higher Education Area," published online, SpringerScience+Business Media, B.V., 2004.
- [11] D. Zhang and J. F. Nunamaker, "Powering E-Learning In the New Millennium: An Overview of E-Learning and Enabling Technology," *Information Systems Frontiers* 5:2, Kluwer Academic Publishers, 2003, pp. 207-218.
- [12] D. Wood and M. Friedel, "Peer review of online learning and teaching: Harnessing collective intelligence to address emerging challenges," *Australasian Journal of Educational Technology*, 25(1), 2009, pp.60-79.
- [13] M. Bettaz, "Six Pillars of Quality Management," invited lecture, proceedings of the Training Workshop on Quality Assurance in Higher Education Institutions, Muscat, Oman, December 2005.
- [14] M. Bettaz, I. Al-Fuqaha, M. Mosteghanemi, and M. Miloudi, "Reverse-Engineering of e-Learning Quality Management Themes for the Advancement of Face-to-Face Pedagogy," In V. Snasel (ed), proceedings of The International Conference on Digital Information, Networking, and Wireless Communications (DINWC), Ostrava, 22-24 june 2014, Society of Digital Information and Wireless Communications (SDIWC), pp.74-85.
- [15] J. Broady-Preston, "The Quality Assurance Agency (QAA) and Subject Review: The Viewpoint of the Assessor," *Libri*, 2002, vol. 52, pp. 195-198.